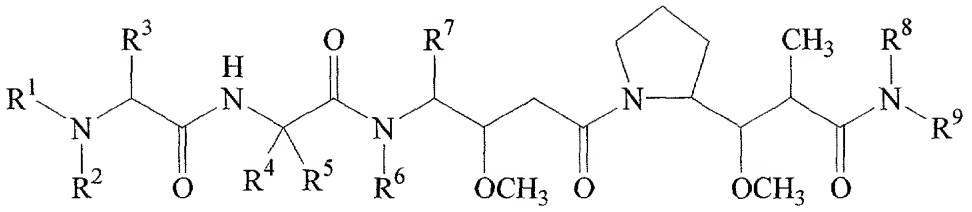
CLAIMS

1. A compound of the formula



wherein, independently at each location:

R^1 is selected from hydrogen and lower alkyl;

R^2 is selected from hydrogen and lower alkyl;

R^3 is lower alkyl;

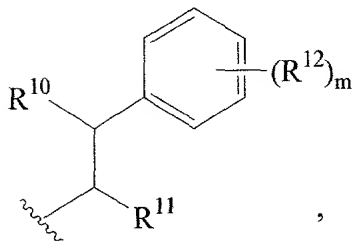
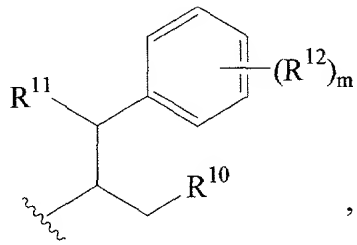
R^4 is selected from lower alkyl, aryl, and -CH_2-C_{5-7}carbocycle when R^5 is selected from H and methyl, or R^4 and R^5 together form a carbocycle of the partial formula -$(CR^aR^b)_n$- wherein R^a and R^b are independently selected from hydrogen and lower alkyl and n is selected from 2, 3, 4, 5 and 6;

R^6 is selected from hydrogen and lower alkyl;

R^7 is *sec*-butyl or *iso*-butyl;

R^8 is selected from hydrogen and lower alkyl; and

R^9 is selected from


,

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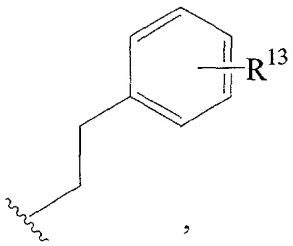
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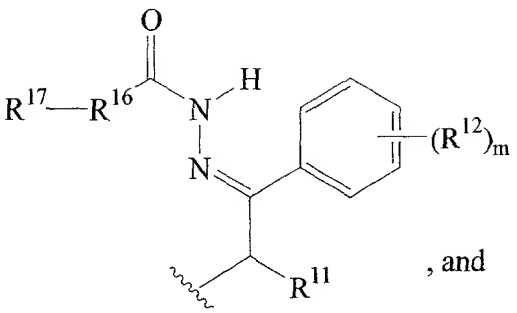
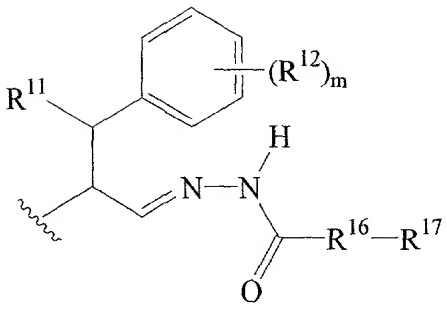
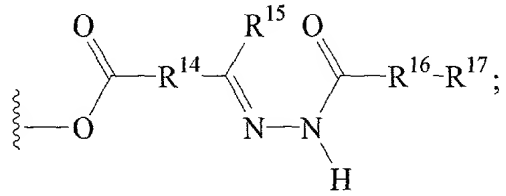


, and



;

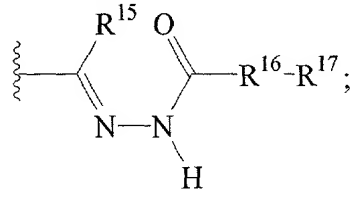
wherein:

R^{10} is 

;

R^{11} is selected from hydrogen and lower alkyl;

R^{12} is selected from lower alkyl, halogen, and methoxy, and m is 0-5 where R^{12} is independently selected at each occurrence; and

R^{13} is 

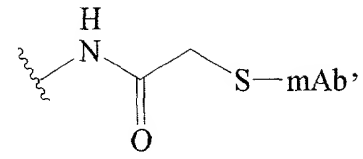
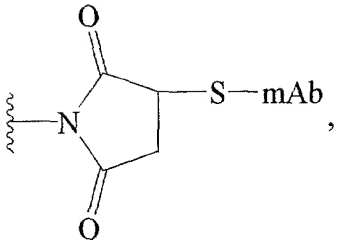
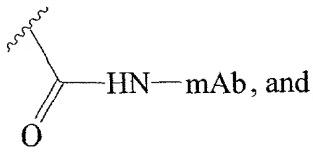
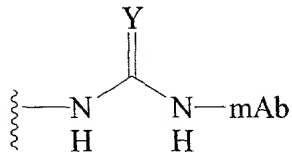
;

wherein:

R^{14} is selected from a direct bond, divalent lower alkyl and divalent aryl;

R^{15} is selected from hydrogen, lower alkyl and aryl;

R^{16} is selected from divalent lower alkyl, divalent aryl, and $-(CH_2OCH_2)_pCH_2-$ where p is 1-5; and

R^{17} is selected from  ,  ,  , and  where Y = O or S.

2. A compound of claim 1 wherein R^1 is hydrogen.

3. A compound of claim 1 wherein R^1 and R^2 are methyl.

4. A compound of claim 1 wherein R^3 is isopropyl.

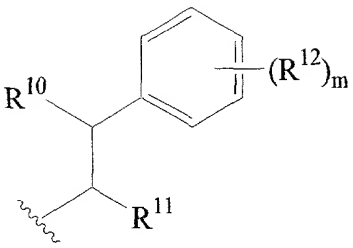
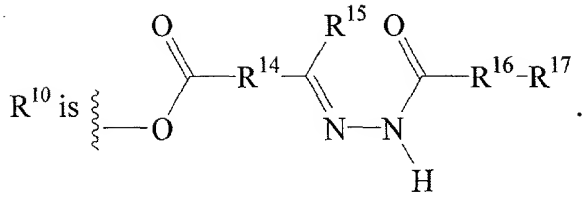
5. A compound of claim 1 wherein R^4 is selected from lower alkyl, aryl, and $-CH_2-C_{5-7}$carbocycle and R^5 is selected from H and methyl.

6. A compound of claim 1 wherein R^4 is selected from lower alkyl, and R^5 is selected from H and methyl.

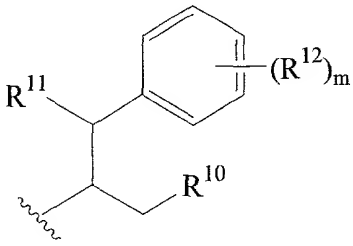
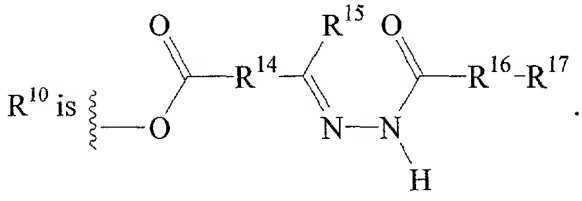
7. A compound of claim 1 wherein R^4 and R^5 together form a carbocycle of the partial formula $-(CR^aR^b)_n-$ wherein R^a and R^b are independently selected from hydrogen and lower alkyl and n is selected from 2, 3, 4, 5 and 6.

8. A compound of claim 1 wherein R^6 is lower alkyl.

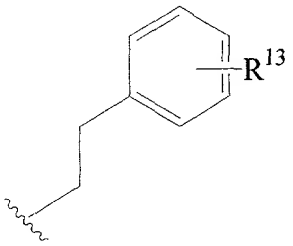
9. A compound of claim 1 wherein R^8 is hydrogen.

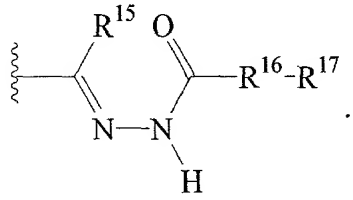
10. A compound of claim 1 wherein R^9 is  and R^{10} is  .

11. A compound of claim 10 wherein R^{14} is selected from divalent aryl and divalent alkyl; R^{15} is selected from lower alkyl and aryl; and R^{16} is divalent lower alkyl.

12. A compound of claim 1 wherein R^9 is  and R^{10} is  .

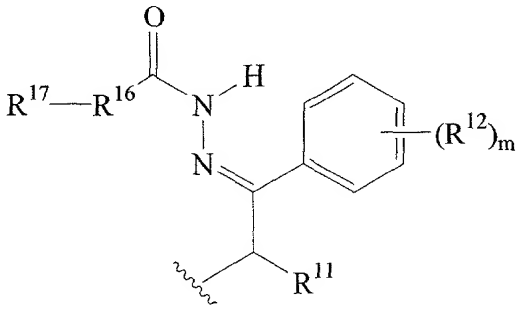
13. A compound of claim 12 wherein R^{14} is selected from divalent aryl and divalent lower alkyl; R^{15} is selected from lower alkyl and aryl; and R^{16} is divalent lower alkyl.

14. A compound of claim 1 wherein R^9 is  and R^{13} is



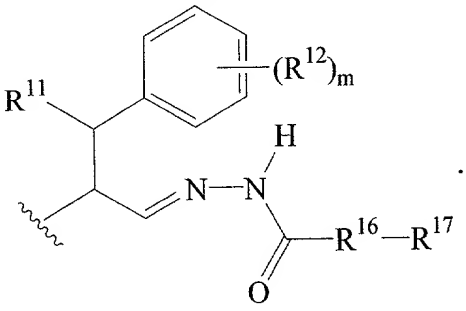
15. A compound of claim 14 wherein R^{15} is lower alkyl; and R^{16} is divalent lower alkyl.

16. A compound of claim 1 wherein R^9 is

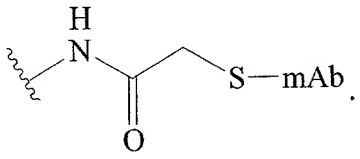


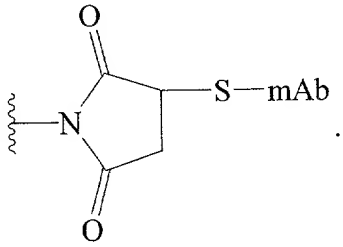
17. A compound of claim 16 wherein R^{16} is selected from divalent lower alkyl and divalent aryl.

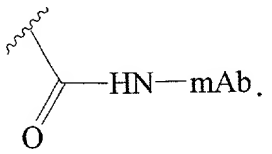
18. A compound of claim 1 wherein R^9 is

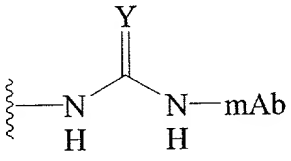


19. A compound of claim 18 wherein R^{16} is selected from divalent lower alkyl and divalent aryl.

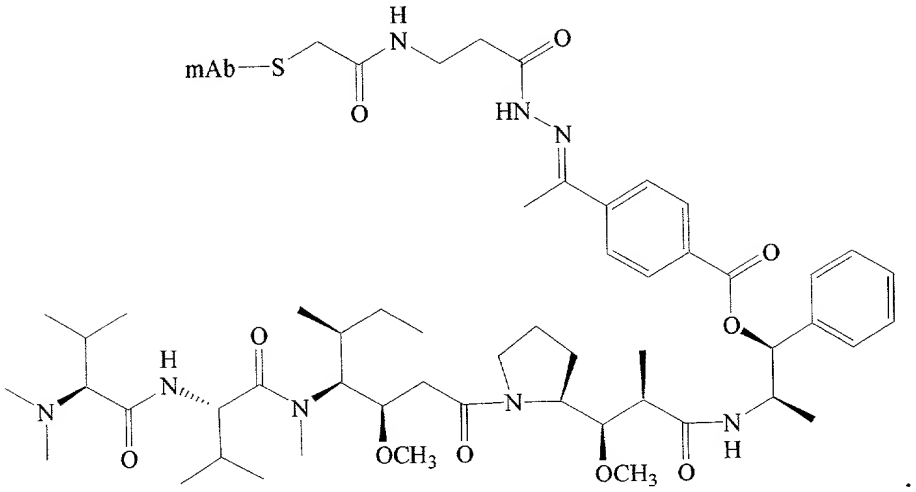
20. A compound of claim 1 wherein R^{17} is  .

21. A compound of claim 1 wherein R^{17} is  .

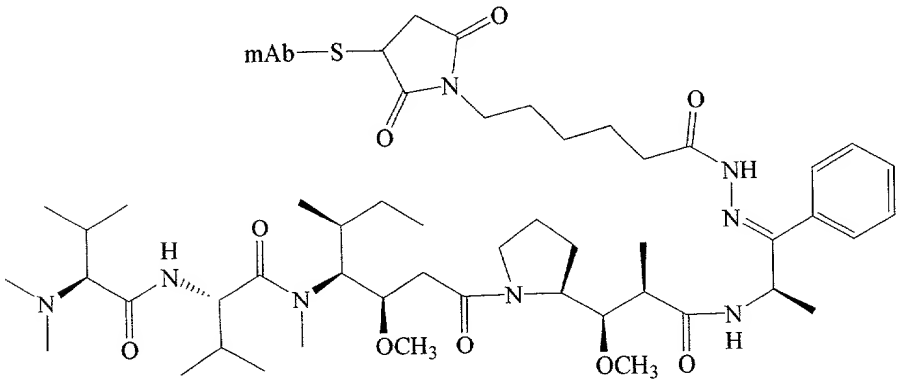
22. A compound of claim 1 wherein R^{17} is  .

23. A compound of claim 1 wherein R^{17} is  and Y = O or S.

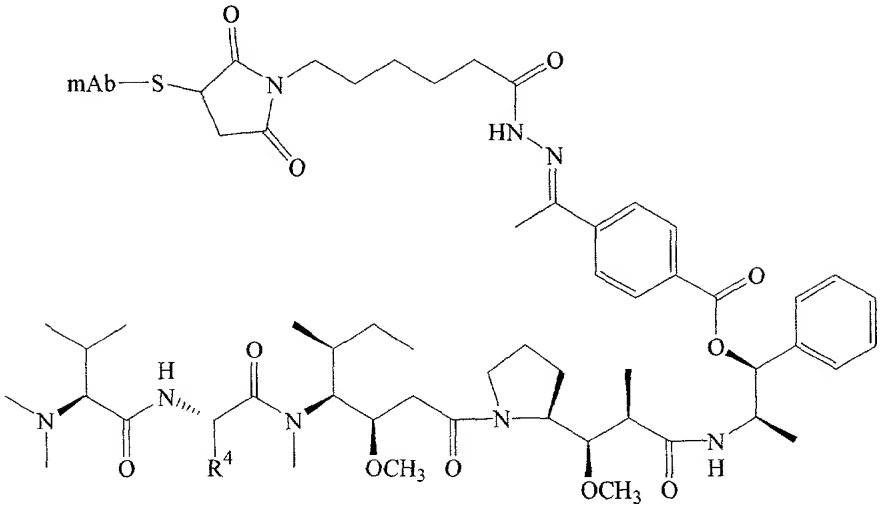
24. A compound of claim 1 having the structure



25. A compound of claim 1 having the structure

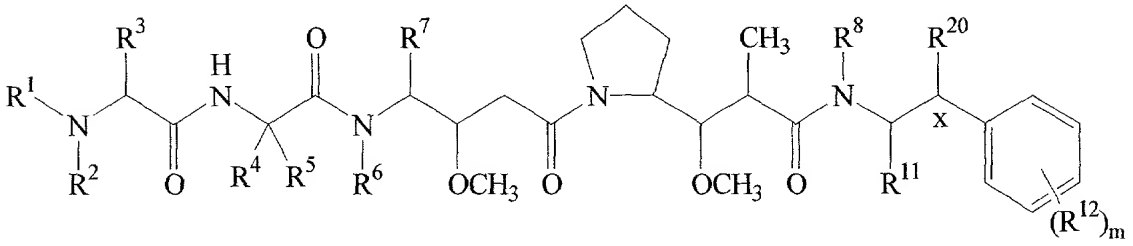


26. A compound of claim 1 having the structure



wherein R^4 is selected from *iso*-propyl and *sec*-butyl.

27. A compound of the formula



wherein, independently at each location:

R^2 is selected from hydrogen and lower alkyl;

R^3 is lower alkyl;

R^4 is selected from lower alkyl, aryl, and -CH_2-C_{5-7}carbocycle when R^5 is selected from H and methyl, or R^4 and R^5 together form a carbocycle of the partial formula -$(CR^aR^b)_n$- wherein R^a and R^b are independently selected from hydrogen and lower alkyl and n is selected from 2, 3, 4, 5 and 6;

R^6 is selected from hydrogen and lower alkyl;

R^7 is *sec*-butyl or *iso*-butyl;

R^8 is selected from hydrogen and lower alkyl;

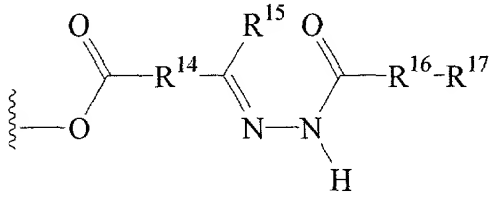
R^{11} is selected from hydrogen and lower alkyl;

R^{12} is selected from lower alkyl, halogen, and methoxy, and m is 0-5 where R^{12} is independently selected at each occurrence; and

R^{20} is a reactive linker group having a reactive site that allows R^{20} to be reacted with a targeting moiety, where R^{20} can be bonded to the carbon labeled "x" by either a single or double bond.

28. A compound of claim 27 wherein the reactive site is selected from *N*-hydroxysuccinimide ester, *p*-nitrophenyl ester, pentafluorophenyl ester, isothiocyanate, isocyanate, anhydride, acid chloride, and sulfonyl chloride.

29. A compound of claim 27 wherein R^{20} comprises a hydrazone of the formula

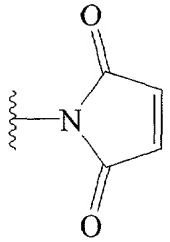
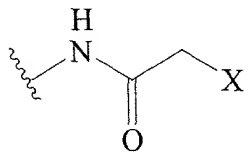
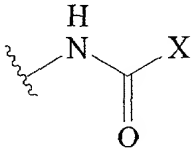


wherein:

R^{14} is selected from a direct bond, divalent lower alkyl and divalent aryl;

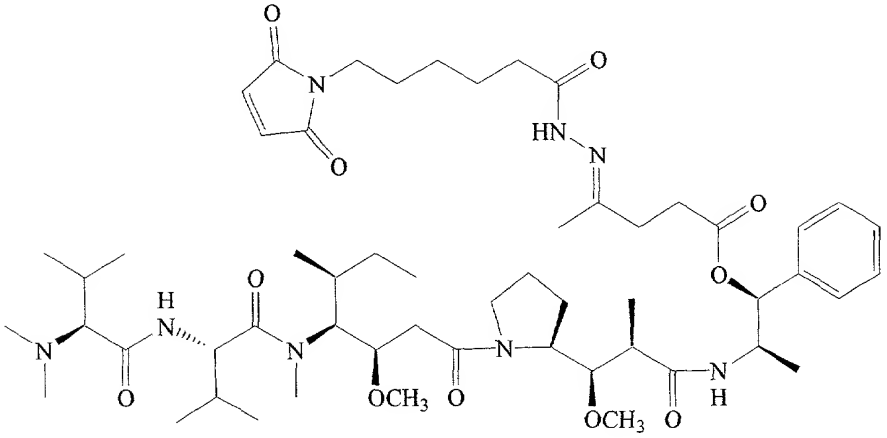
R^{15} is selected from hydrogen, lower alkyl and aryl;

R^{16} is selected from divalent lower alkyl, divalent aryl, and $-(CH_2OCH_2)_pCH_2-$ where p is 1-5; and

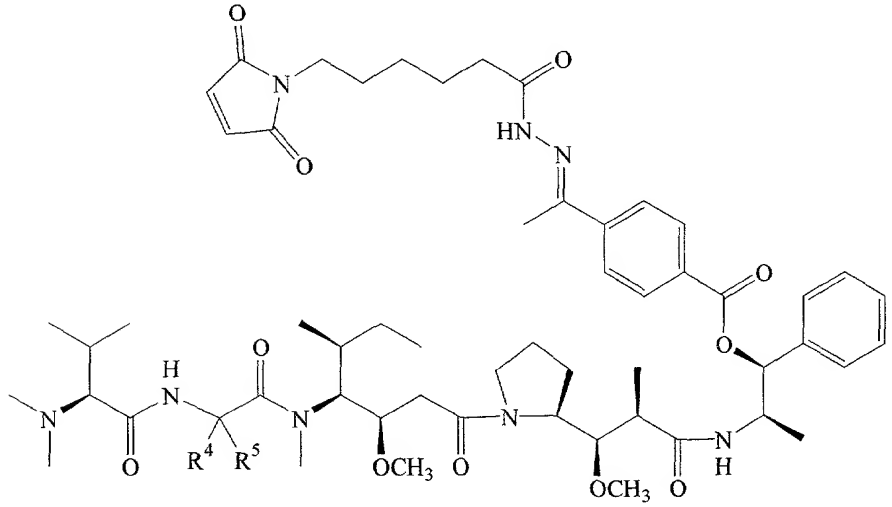
R^{17} is selected from  ,  , and 

wherein X is a leaving group.

30. A compound of claim 29 having the formula

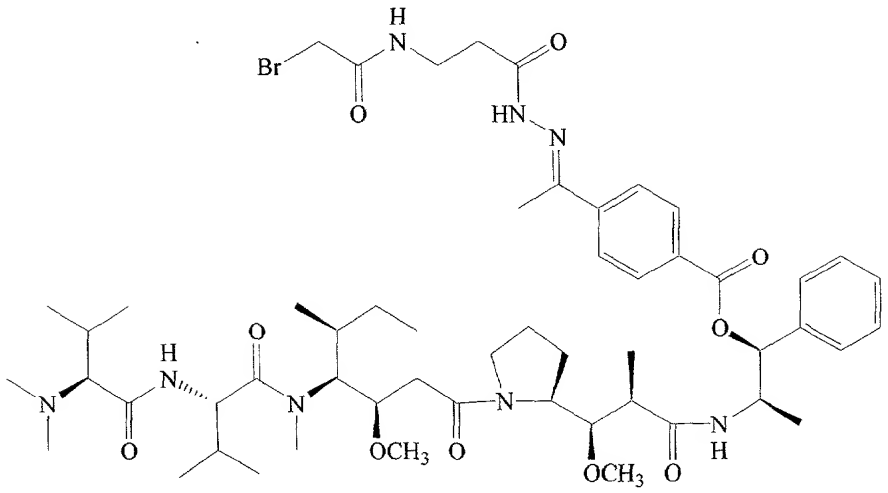


31. A compound of claim 29 having the formula

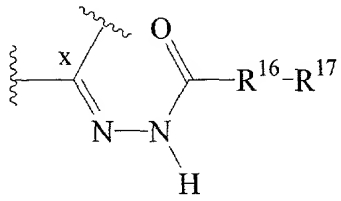


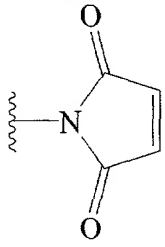
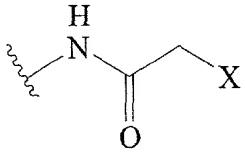
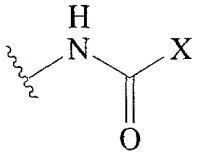
wherein R^4 is selected from *iso*-propyl and *sec*-butyl, and R^5 is hydrogen.

32. A compound of claim 29 having the formula

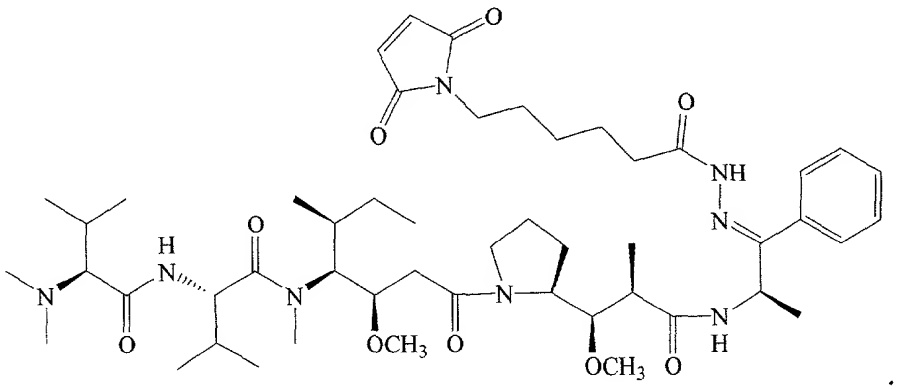


33. A compound of claim 27 wherein R^{20} comprises a hydrazone of the formula:

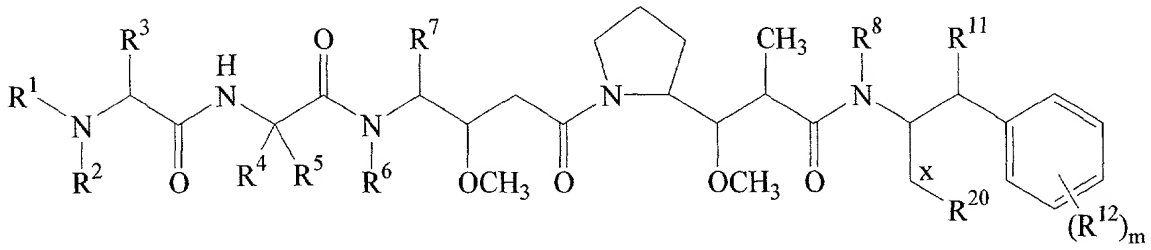


wherein R^{16} is selected from divalent lower alkyl, divalent aryl, and $-(CH_2OCH_2)_pCH_2-$ where p is 1-5, and x identifies the carbon also marked x in claim 27; and R^{17} is selected from  ,  , and  wherein X is a leaving group.

34. A compound of claim 32 having the formula



35. A compound of the formula



wherein, independently at each location:

R^1 is selected from hydrogen and lower alkyl;

R^2 is selected from hydrogen and lower alkyl;

R^3 is lower alkyl;

R^4 is selected from lower alkyl, aryl, and -CH_2-C_{5-7}carbocycle when R^5 is selected from H and methyl, or R^4 and R^5 together form a carbocycle of the partial formula -$(CR^aR^b)_n$- wherein R^a and R^b are independently selected from hydrogen and lower alkyl and n is selected from 2, 3, 4, 5 and 6;

R^6 is selected from hydrogen and lower alkyl;

R^7 is *sec*-butyl or *iso*-butyl;

R^8 is selected from hydrogen and lower alkyl;

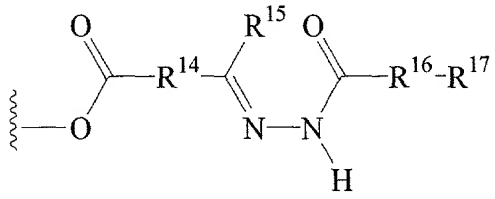
R^{11} is selected from hydrogen and lower alkyl;

R^{12} is selected from lower alkyl, halogen, and methoxy, and m is 0-5 where R^{12} is independently selected at each occurrence; and

R^{20} is a reactive linker group having a reactive site that allows R^{20} to be reacted with a targeting moiety, where R^{20} can be bonded to the carbon labeled "x" by either a single or double bond.

36. A compound of claim 35 wherein the reactive site is selected from *N*-hydroxysuccinimide ester, *p*-nitrophenyl ester, pentafluorophenyl ester, isothiocyanate, isocyanate, anhydride, acid chloride, and sulfonyl chloride.

37. A compound of claim 35 wherein R^{20} comprises a hydrazone of the formula

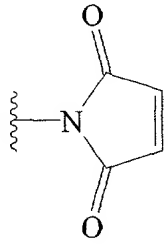
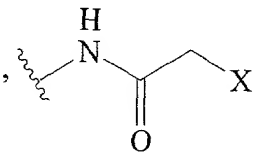
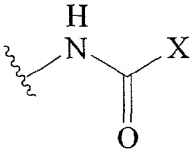


wherein:

R^{14} is selected from a direct bond, divalent lower alkyl and divalent aryl;

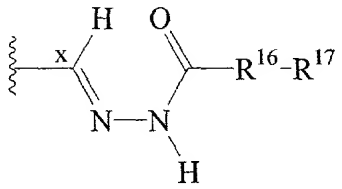
R^{15} is selected from hydrogen, lower alkyl and aryl;

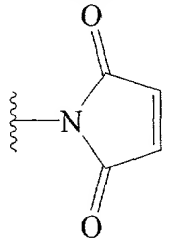
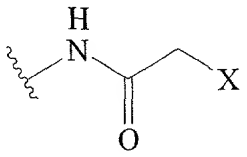
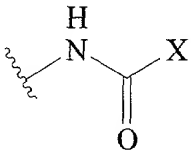
R^{16} is selected from divalent lower alkyl, divalent aryl, and $-(CH_2OCH_2)_pCH_2-$ where p is 1-5; and

R^{17} is selected from  ,  , and 

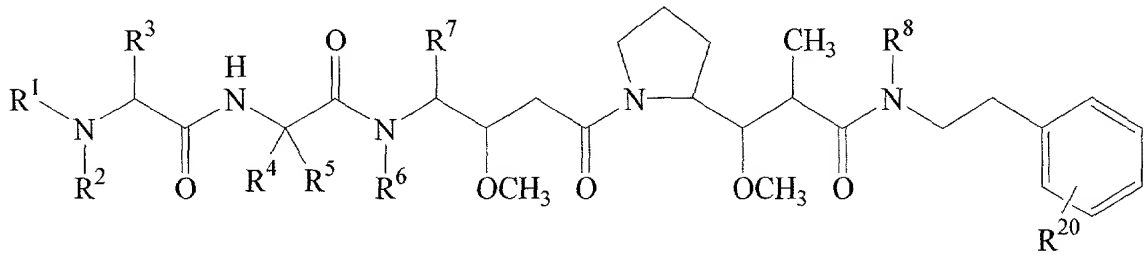
wherein X is a leaving group.

38. A compound of claim 35 wherein R^{20} comprises a hydrazone of the formula:



wherein R^{16} is selected from divalent lower alkyl, divalent aryl, and $-(CH_2OCH_2)_pCH_2-$ where p is 1-5; and R^{17} is selected from  ,  , and  where X is a leaving group.

39. A compound of the formula



wherein, independently at each location:

R^1 is selected from hydrogen and lower alkyl;

R^2 is selected from hydrogen and lower alkyl;

R^3 is lower alkyl;

R^4 is selected from lower alkyl, aryl, and $-CH_2-C_{5-7}$carbocycle when R^5 is selected from H and methyl, or R^4 and R^5 together form a carbocycle of the partial formula $-(CR^aR^b)_n-$ wherein R^a and R^b are independently selected from hydrogen and lower alkyl and n is selected from 2, 3, 4, 5 and 6;

R^6 is selected from hydrogen and lower alkyl;

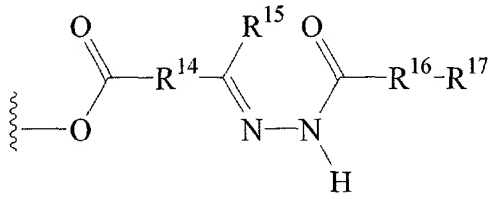
R^7 is *sec*-butyl or *iso*-butyl;

R^8 is selected from hydrogen and lower alkyl; and

R^{20} is a reactive linker group comprising a reactive site that allows R^{20} to be reacted with a targeting moiety.

40. A compound of claim 39 wherein the reactive site is selected from *N*-hydroxysuccinimide ester, *p*-nitrophenyl ester, pentafluorophenyl ester, isothiocyanate, isocyanate, anhydride, acid chloride, and sulfonyl chloride.

41. A compound of claim 39 wherein R^{20} comprises a hydrazone of the formula

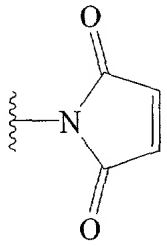
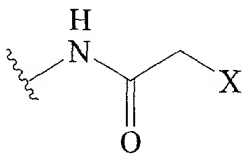
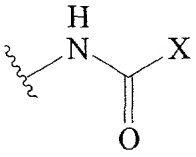


wherein:

R^{14} is selected from a direct bond, divalent lower alkyl and divalent aryl;

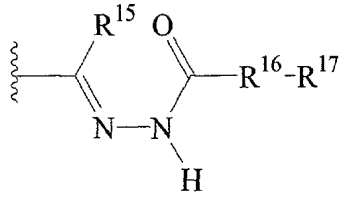
R^{15} is selected from hydrogen, lower alkyl and aryl;

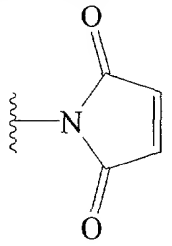
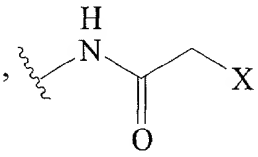
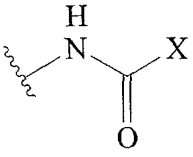
R^{16} is selected from divalent lower alkyl, divalent aryl, and $-(CH_2OCH_2)_pCH_2-$ where p is 1-5; and

R^{17} is selected from  ,  , and 

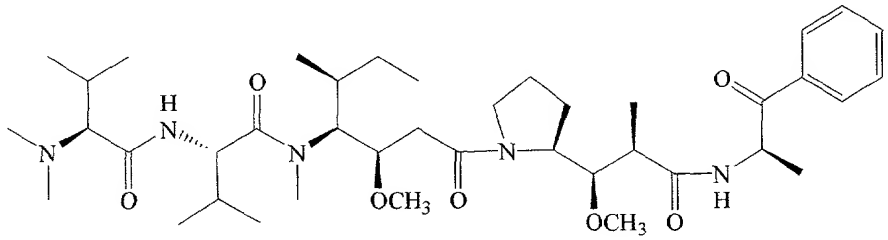
where X is a leaving group.

42. A compound of claim 39 wherein R^{20} comprises a hydrazone of the formula:

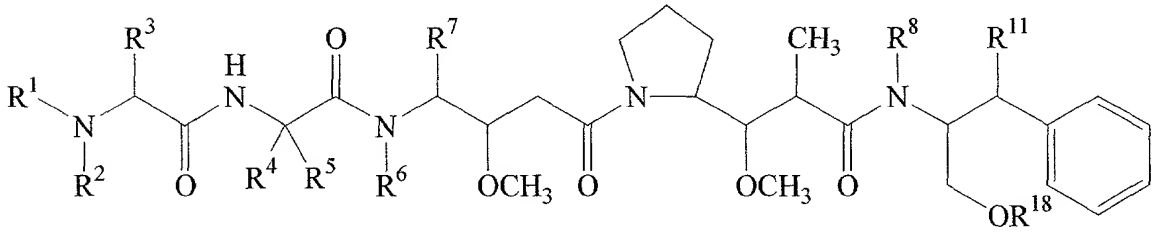


wherein, R^{15} is selected from hydrogen, and lower alkyl, R^{16} is selected from divalent lower alkyl, divalent aryl, and $-(CH_2OCH_2)_pCH_2-$ where p is 1-5 and R^{17} is selected from  ,  , and  where X is a leaving group.

43. A compound of the formula



44. A compound of the formula



wherein, independently at each location:

R^1 is selected from hydrogen and lower alkyl;

R^2 is selected from hydrogen and lower alkyl;

R^3 is lower alkyl;

R^4 is selected from lower alkyl, aryl, and -CH_2-C_{5-7}carbocycle when R^5 is selected from H and methyl, or R^4 and R^5 together form a carbocycle of the partial formula -$(CR^aR^b)_n$- wherein R^a and R^b are independently selected from hydrogen and lower alkyl and n is selected from 2, 3, 4, 5 and 6;

R^6 is selected from hydrogen and lower alkyl;

R^7 is *sec*-butyl or *iso*-butyl;

R^8 is selected from hydrogen and lower alkyl;

R^{11} is selected from hydrogen and lower alkyl; and

R^{18} is selected from hydrogen, a hydroxyl protecting group, and a direct bond where OR^{18} represents =O.

45. A compound of claim 44 wherein R^1 is hydrogen.

46. A compound of claim 44 wherein R^1 and R^2 are methyl.

47. A compound of claim 44 wherein R^3 is isopropyl.

48. A compound of claim 44 wherein R^4 is selected from lower alkyl, aryl, and -CH_2-C_{5-7}carbocycle and R^5 is selected from H and methyl.

49. A compound of claim 44 wherein R^4 is selected from lower alkyl, and R^5 is selected from H and methyl.

50. A compound of claim 44 wherein R^4 and R^5 together form a carbocycle of the partial formula -$(CR^aR^b)_n$- wherein R^a and R^b are independently selected from hydrogen and lower alkyl and n is selected from 2, 3, 4, 5 and 6.

51. A compound of claim 44 wherein R^6 is lower alkyl.

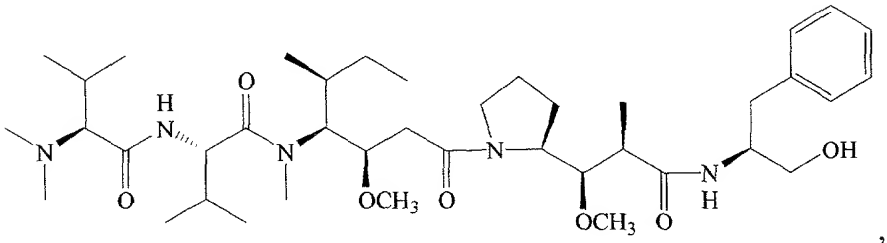
52. A compound of claim 44 wherein R^8 is hydrogen.

53. A compound of claim 44 wherein R^{11} is hydrogen.

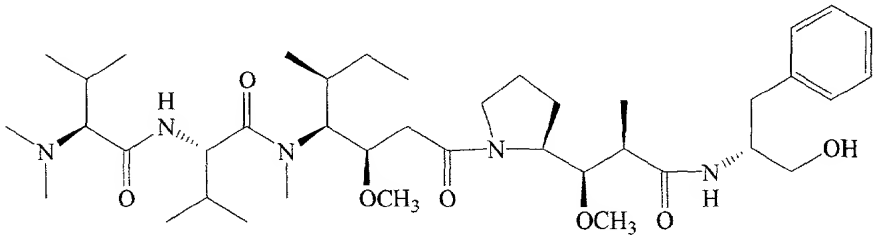
54. A compound of claim 44 wherein $-OR^{18}$ is =O.

55. A compound of claim 44 wherein R^{18} is hydrogen.

56. A compound of claim 44 having the structure



, or



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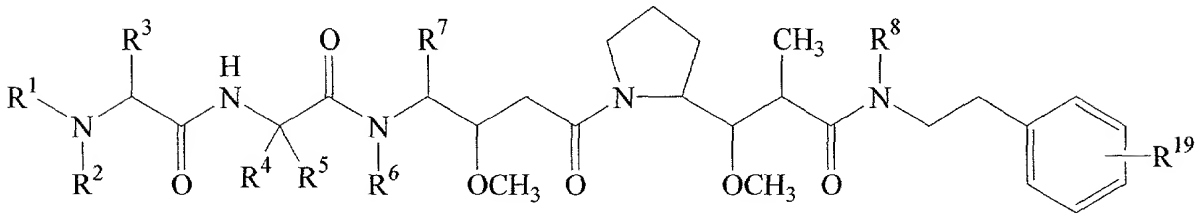
57. A compound of the formula



wherein, independently at each location:

R^1 is selected from hydrogen and lower alkyl;

R^2 is selected from hydrogen and lower alkyl;

R^3 is lower alkyl;

R^4 is selected from lower alkyl, aryl, and -CH_2-C_{5-7}carbocycle when R^5 is selected from H and methyl, or R^4 and R^5 together form a carbocycle of the partial formula -$(CR^aR^b)_n$- wherein R^a and R^b are independently selected from hydrogen and lower alkyl and n is selected from 2, 3, 4, 5 and 6;

R^6 is selected from hydrogen and lower alkyl;

R^7 is *sec*-butyl or *iso*-butyl;

R^8 is selected from hydrogen and lower alkyl; and

R^{19} is selected from hydroxy- and oxo-substituted lower alkyl.

58. A compound of claim 57 wherein R^1 is hydrogen.

59. A compound of claim 57 wherein R^1 and R^2 are methyl.

60. A compound of claim 57 wherein R^3 is *iso*-propyl.

61. A compound of claim 57 wherein R^4 is selected from lower alkyl, aryl, and -CH_2-C_{5-7}carbocycle and R^5 is selected from H and methyl.

62. A compound of claim 57 wherein R^4 is selected from lower alkyl, and R^5 is selected from H and methyl.

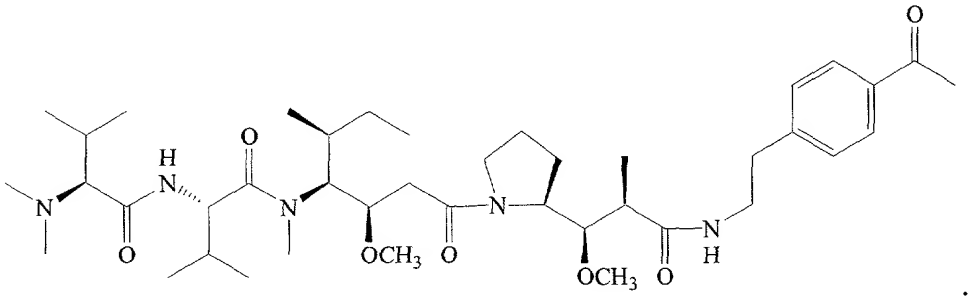
63. A compound of claim 57 wherein R^4 and R^5 together form a carbocycle of the partial formula -$(CR^aR^b)_n$- wherein R^a and R^b are independently selected from hydrogen and lower alkyl and n is selected from 2, 3, 4, 5 and 6.

64. A compound of claim 57 wherein R^6 is lower alkyl.

65. A compound of claim 57 wherein R^8 is hydrogen.

66. A compound of claim 57 wherein R^{19} is oxo-substituted lower alkyl.

67. A compound of claim 57 having the structure



68. A composition comprising a compound of any one of claims 1-26 and a pharmaceutically acceptable carrier, diluent or excipient.

69. A composition comprising a compound of any one of claims 40-64 and a pharmaceutically acceptable carrier, diluent or excipient.

70. A method for killing a cell, the method comprising contacting the cell with a lethal amount of the compound of claim 1-26.

71. A method for killing a cell, the method comprising administering to the cell a lethal amount of the compound of any one of claims 43-67.

72. A method of killing a cell comprising

a. delivering a compound of any one of claims 1-26 to a cell, where the compound enters the cell;

b. cleaving mAb from the remainder of the compound; and

c. killing the cell with the remainder of the compound.

73. A method of killing a cell comprising

a. delivering a compound of any one of claims 43-67 to a cell, where the compound enters the cell;

b. cleaving mAb from the remainder of the compound; and

c. killing the cell with the remainder of the compound.

74. A method of killing or inhibiting the multiplication of tumor cells or cancer cells in a human or other animal, the method comprising administering to the human or animal a therapeutically effective amount of a compound of any one of claims 1-26.

75. A method of killing or inhibiting the multiplication of tumor cells or cancer cells in a human or other animal, the method comprising administering to the human or animal a therapeutically effective amount of a compound of any one of claims 43-67.